

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

- 1) Please cancel claims 2, 10, 18 and 19 without prejudice or disclaimer of the subject matter thereof.
- 2) Please amend claims 1, 3-9 and 11-17.
- 3) Please add new claim 20.

**Listing of Claims:**

Claim 1 (Currently amended): A method of operating ~~Operating mode for fluorescent tubes, such luminaries, said method comprising the steps of:~~  
~~including providing~~ one or more ~~standard~~ fluorescent tubes that contain mercury vapor gas and at least one electrode including heating filament cathodes at ends, a fixture that ~~integers proper comprises~~ holding and connection devices for the fluorescent tubes and ~~one a~~ ballast for driving the fluorescent tubes; ~~Ballast operating mode differs from existing systems by the fact that it uses~~  
applying voltage pulses applied to the electrodes for exciting the fluorescent mercury vapor gas, such the pulses consisting of non periodic voltage levels separated by variable duration dead times being of alternative form including amplitudes of equal values but of positive and negative polarity [[.]]: and  
producing alternative voltage pulses from the ballast.

Claim 2 (Cancelled).

Claim 3 (Currently amended): ~~Operating mode~~ The method according to claim 1 further comprising the step of monitoring, characterized in that the ballast monitors the voltage signals as well as dead times by the ballast using means of a programmed algorithm.

Claim 4 (Currently amended): ~~Operating mode~~ The method according to claim 1, characterized in that ~~wherein~~ the ballast monitors each dead times duration according to real time samplings of the current crossing gas in the fluorescent tubes.

Claim 5 (Currently amended): ~~Operating mode~~ The method according to claim 1 further comprising the step of activating, ~~characterized in that the special couplings of connexion/connection/fixation of the fluorescent tubes are activated by the ballast in order to short cut the filaments of the electrodes of the fluorescent tubes in such a way to cancel the current though/through them and to thus avoid the losses in voltage.~~

Claim 6 (Currently amended): ~~Operating mode~~ The method according to claim 1 further comprising the step of igniting, ~~characterized in that conduction through the mercury vapor gas of the fluorescent tubes is ignited by the temporary connection of a capacitor making it possible to increase the tension between the electrodes of each fluorescent tube and that this/the capacitor is disconnected as soon as conduction is obtained.~~

Claim 7 (Currently amended): ~~Operating mode~~ The method according to claim 6 further comprising the step of modifying, ~~characterized in that the ballast modifies the current level crossing the gas by the ballast, so in such way that the current crossing the capacitor is minimized before the disconnection of the capacitor.~~

Claim 8 (Currently amended): ~~Operating mode~~ The method according to claim 1 further comprising the step of communicating, ~~characterized in that the ballast communicates with a remote central control unit through a-at least one of a wired or-and wireless link for performance monitoring and remote failure detection.~~

Claim 9 (Currently amended): Luminary ~~A luminary~~ for fluorescent tubes, ~~such luminary including the luminary comprising:~~

one or more ~~standard~~ fluorescent tubes that contain mercury vapor gas and at least one electrode including heating filament cathodes at ends[.];

a fixture that ~~integrates proper~~ comprises holding and connection devices for the fluorescent tubes; and

~~one-a~~ ballast for driving the fluorescent tubes, the ballast is configured to generate. ~~Ballast operating mode differs from existing systems by the fact that it uses voltage pulses applied to the electrodes for exciting the fluorescent-mercury vapor gas, such-the pulses consisting of non periodic voltage levels separated by variable duration dead times~~ being of

alternative form including amplitudes of equal values but of positive and negative polarity.

Claim 10 (Cancelled).

Claim 11 (Currently amended): ~~Luminary for fluorescent tubes~~ The luminary according to claim 9, characterized in that the ballast produces the voltage pulses ~~signals~~ as well as dead time by means of programmed algorithms.

Claim 12 (Currently amended): ~~Luminary for fluorescent tubes~~ The luminary according to claim 9, characterized in that the ballast is adapted-configured to monitor each dead time duration according to real time samplings of the current through the ~~fluorescent tubes~~ mercury vapor gas in the fluorescent tubes.

Claim 13 (Currently amended): ~~Luminary for fluorescent tubes~~ The luminary according to claim 9, characterized in that the ~~holdings~~ holding of ~~connection~~ connection/fixings of the fluorescent tubes comprise special couplings being able to be activated by the ballast to short cut the ~~electrodes~~ filament of the electrodes of the fluorescent tubes in order to cancel the current.

Claim 14 (Currently amended): ~~Luminary for fluorescent tubes~~ The luminary according to claim 9 further comprising, ~~characterized in that~~ a capacitor ~~can be~~ connected between the special couplings ~~in order to~~ increase the voltage between the electrodes of each fluorescent tube in order to start conduction through the mercury vapor gas, ~~such the~~ capacitor being disconnected as soon as conduction is obtained.

Claim 15 (Currently amended): ~~Luminary for fluorescent tubes~~ The luminary according to the claim 14, characterized in that the ballast is ~~adapted-configured~~ to modify the current crossing of the ~~fluorescent tube~~ mercury vapor gas when conduction is obtained, ~~in such a way so~~ that the current in the capacitor is reduced at its lowest level before the disconnection of such capacitor.

Claim 16 (Currently amended): ~~Luminary for fluorescent tubes~~ The luminary according to claim 9, characterized in that the ballast ~~has a~~ includes at least one of a wire ~~or and~~ wireless connection enabling ~~him the ballast~~ to communicate with a remote control unit for performance monitoring and remote failure detection.

Claim 17 (Currently amended): ~~Luminary for fluorescent tubes~~ The luminary according to claim 9, characterized in that the ballast includes two parts; ~~the~~ a first part

being a standard ballast functioning ~~simply with the a main sector and the a second part~~ being a specifically assembled part to work with the non periodic pulses of the ballast characterizing the invention of this patent.

Claims 18 and 19 (Cancelled).

Claim 20 (New): A method of operating a fluorescent tube for reducing an operating temperature the fluorescent tube and improving electronic ballast reliability, said method comprising the steps of:

providing at least one fluorescent tube containing a fluorescent gas, at least one electrode including at least one heating filament cathode located at each end of the fluorescent tube, a fixture that comprises holding and connection devices for the fluorescent tube, and a ballast for driving the fluorescent tube;

producing non periodic voltage pulses from the ballast;

applying the non periodic voltage pulses to the electrodes for exciting the fluorescent gas, the non periodic pulses are separated by variable duration dead times being of alternative form including amplitudes of equal values but of positive and negative polarity;

igniting conduction through the fluorescent gas of the fluorescent tube by the temporary connection of a capacitor in parallel with the fluorescent tube making it possible to increase tension between the electrodes of the fluorescent tube;

disconnecting the capacitor when conduction is obtained;

controlling a pre-heating of the cathodes of the electrodes until a predetermined optimal operation is reached due to a controlled and specific excitation during the ignition of conduction of the fluorescent gas indifferent to temperature in the fluorescent tube;

monitoring current flowing through the fluorescent tube for determining a resonance effect, thereby allowing the ballast to monitor a voltage waveform of the fluorescent tube in real time;

regulating the dead time according to at least one programmed function that supervise the conditions and physical parameters coupling voltage variations and collision rate between electrons and mercury atoms;

allowing the igniting of conduction to continue until a predetermined nominal running mode is reached;

allowing the current crossing the fluorescent tube and emission of light from the fluorescent tube to increase by successive steps;

allowing the current to decrease until a phenomenon of resonance is stable according to environmental conditions; and

increasing the number of collisions between electrons and mercury atoms by depending current intensity on the resonance effect in the fluorescent gas.